Racket for Everyone (Else)

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Racket's target audiences?

CS Freshmen
Middle schoolers

Language researchers

Is something missing?

[???]
CS Freshmen
Middle schoolers

[???]

Language researchers

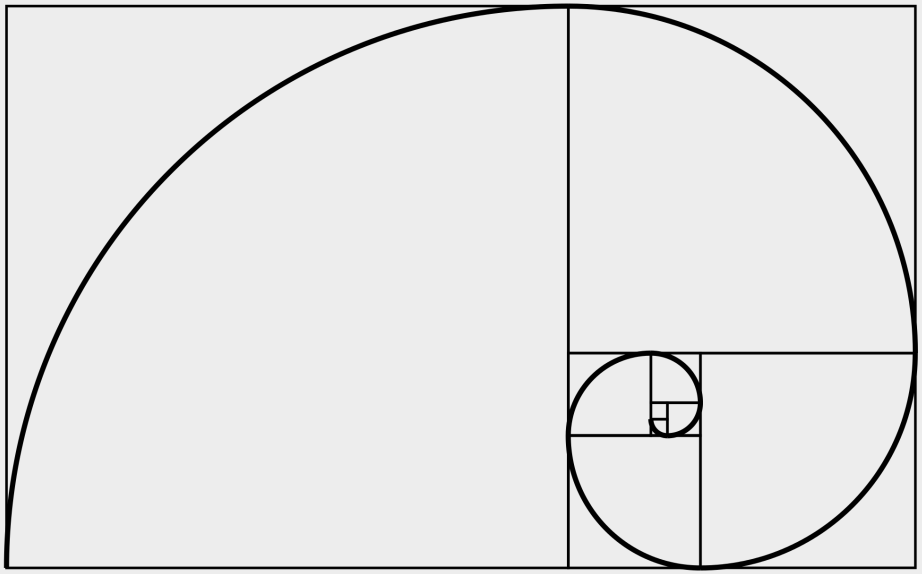
Is something missing?

Non-CS/math coders
CS Freshmen
Middle schoolers [???] Language researchers

Racket for the Humanities

(or people with CS imposter syndrome)

Learning Python as a non-CS/math person



Programmable Publishing

Digital Humanities for Everyone!

Want to learn computer programming, but don't think you're enough of a math / computer science person? Have we got the workshop for you!

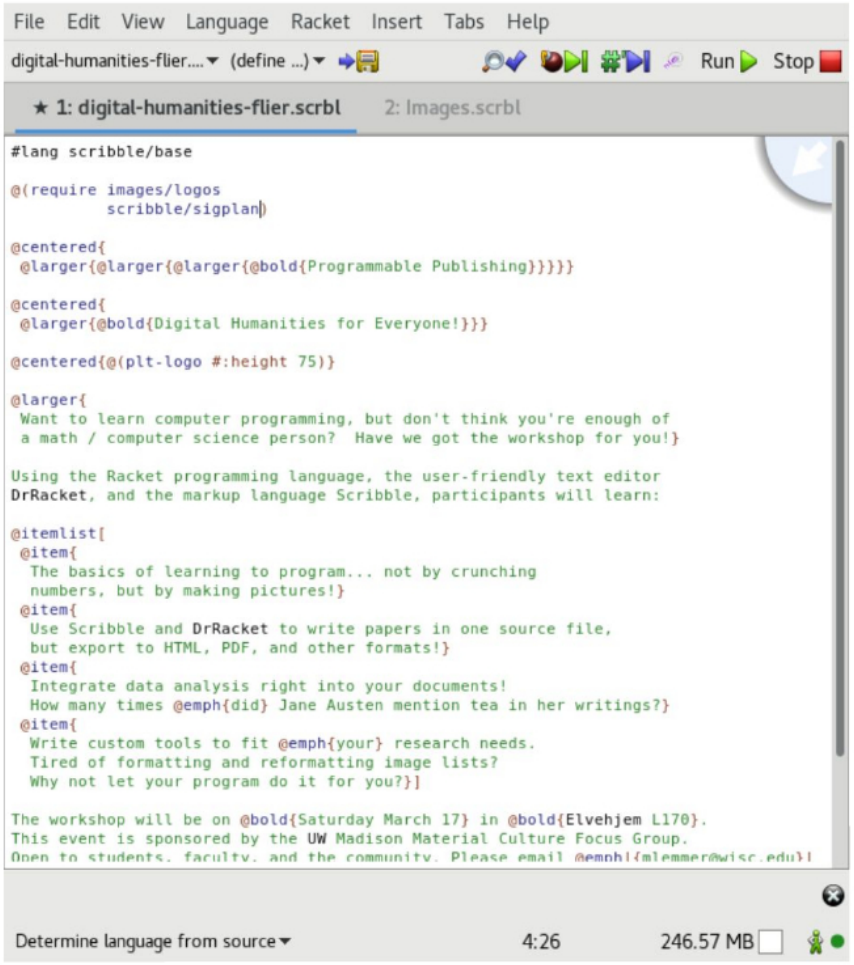
Using the Racket programming language, the user-friendly text editor DrRacket, and the markup language Scribble, participants will learn:

- The basics of learning to program... not by crunching numbers, but by making pictures!
- Use Scribble and DrRacket to write papers in one source file, but export to HTML, PDF, and other formats!
- Integrate data analysis right into your documents! How many times *did* Jane Austen mention tea in her writings?
- Write custom tools to fit *your* research needs. Tired of formatting and reformatting image lists? Why not let your program do it for you?

The workshop will be on **Saturday March 17** from **1-4pm** in **Elvehjem L170**. This event is sponsored by the UW Madison Material Culture Focus Group and is open to students, faculty, and the community. Please email *mlemmer@wisc.edu* if you are interested in participating as space is limited.

You *can* learn to program... yes, you!

Pssst... flip this flier up to see its source code!


File Edit View Language Racket Insert Tabs Help
digital-humanities-flier.... (define ...) Run Stop
★ 1: digital-humanities-flier.scrbl
2: Images.scrbl
#lang scribble/base
@(require images/logos
scribble/sigplan)
@centered{
@larger{@larger{@larger{@bold{Programmable Publishing}}}}}
@centered{
@larger{@bold{Digital Humanities for Everyone!}}}
@centered{@(plt-logo #:height 75)}
@larger{
Want to learn computer programming, but don't think you're enough of
a math / computer science person? Have we got the workshop for you!}
Using the Racket programming language, the user-friendly text editor
DrRacket, and the markup language Scribble, participants will learn:
@itemlist[
@item{
The basics of learning to program... not by crunching
numbers, but by making pictures!}
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Use Scribble and DrRacket to write papers in one source file,
but export to HTML, PDF, and other formats!}
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Integrate data analysis right into your documents!
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This event is sponsored by the UW Madison Material Culture Focus Group.
Open to students, faculty, and the community. Please email @emph|{mlemmer@wisc.edu}|
Determine language from source
4:26
246.57 MB

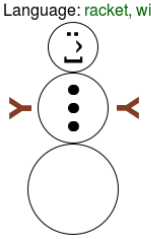
JessieSn

File Edit View Language Racket Insert Tabs Help

JessieSnowman.scrbl (define ...)

```
#lang racket
(require pict)

(define (snowball size)
    (disk size #:color "white"))


(define head
  (cc-superimpose
   (snowball 50)
   (text ":^]" '(bold) 20 (* pi -.5))))

(define left-arm
  (colorize (text "Y" '(bold) 30 (* pi .5))
            "brown"))

(define right-arm
  (colorize (text "Y" '(bold) 30 (* pi -.5
            "brown"))

(define button
    (disk 10 #:color "black"))

(define buttons
  (vc-append 8
   button
   button
   button))

(define body
  (hc-append
```

Language: racket, with debugging; memory limit: 128 MB.



>

Determine language from source

MichelleSnow

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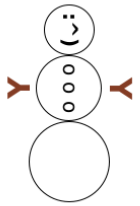
MichelleSnowman.rkt (define ...)

```
#lang racket
(define (snowball size)
    (disk size #:color "white"))

(define head
  (cc-superimpose
   (snowball 50)
   (text ":^)" '(bold) 20 (* pi -0.5))))

(define left-arm
  (colorize (text "Y" '(bold) 30 (* pi .5)) "b

(define right-arm
  (colorize (text "Y" '(bold) 30 (* pi -.5)) '

(define body
  (hc-append
    left-arm
    (cc-superimpose
     (snowball 65)
     (text "o o o" '() 20 (* pi -0.5)))
    right-arm))

(define butt
  (snowball 80))

(define snowman
  (vc-append head body butt))
```

Welcome to DrRacket, version 6.7 [3m].
Language: racket, with debugging; memory limit: 128 MB.
> snowman



>

Determine language from source

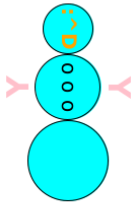
TanyaSnowman.rkt -

File Edit View Language Racket Insert Tabs Help

TanyaSnowman.rkt (define ...) Check

```
#lang racket
(require pict)

;; Make as snowball
(define (snowball size)
  (disk size #:color "cyan"))

;; Snowman components
(define head
  (cc-superimpose
   (snowball 50)
   (colorize (text ":^D" '(bold) 20 (* pi -.5))
   "orange")))

(define left-arm
  (colorize (text "Y" '(bold) 30 (* pi .5))
            "pink"))

(define right-arm
  (colorize (text "Y" '(bold) 30 (* pi -.5))
            "pink"))

(define body
  (hc-append
   left-arm
  (cc-superimpose
   (snowball 65)
   (text "o o o" '() 20 (* pi -.5)))
    right-arm))

(define butt
```

Welcome to DrRacket, version 6.7 [3m].
Language: racket, with debugging; memory limit: 128 MB.
> snowman



>

Determine language from source

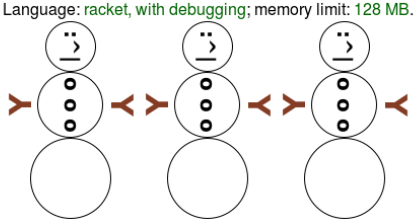
JesseSnowman.rkt - DrRacket

File Edit View Language Racket Insert Tabs Help

JesseSnowman.rkt (define ...) Run Stop

```
#lang racket
(require pict)

(define (snowball size)
    (disk size #:color "white"))

(define head
  (cc-superimpose
   (snowball 50)
   (text ":^|" '(bold) 20 (* pi -.5))))

 (define left-arm
   (colorize (text "Y" '(bold) 30 (* pi .5))
             "brown"))
(define right-arm
  (colorize (text "Y" '(bold) 30 (* pi -.5))
            "brown"))


(define body
 (cc-superimpose
   (snowball 65)
   (text "o o o" '(bold) 20 (* pi -.5))))

(define body-with-arms
  (hc-append
   left-arm
   body
   right-arm))
```

Welcome to DrRacket, version 6.7 [3m].
Language: racket, with debugging; memory limit: 128 MB.



>

Determine language from source 4:2 474.83 MB

How To Use Scribble to Write your Academic Papers: A Reference Tutorial

Morgan Lemmer-Webber

March 25, 2018

Abstract

This tutorial gives examples of the common functions and formatting tags you will need to write an academic paper using Dr. Racket and scribble. This document should be used as a reference guide when you are ready to set up your own academic paper.

This document itself is written in Scribble, and will be most useful to you if you look at both the scribble files (HowTo.scrbl, Basics.scrbl, DocumentStructure.scrbl, Lists.scrbl, Tags.scrbl, Links.scrbl, Tables.scrbl, Citations.scrbl, Images.scrbl, Export.scrbl) and the pdf (HowTo.pdf) or html output (HowTo.html) at the same time. You can find these documents on our git repository `https://github.com/mlemmer/DigitalHumanities`.

Both Racket and Scribble have wonderful documentation and tutorials available, see below for useful references. Often times if you are stuck and can't figure out how to write a function or debug your code on your own you can find an answer by simply googling it (be sure to include some combination of Racket/Scribble in your search because there are a lot of programming languages out there). Racket also has a thriving community of programmers, so you can post a question on the Racket Users forum.

Introduction to Racket with Pictures: `https://docs.racket-lang.org/quick/index.html`
Web Applications in Racket: `https://docs.racket-lang.org/continue/index.html`
Racket Guide: `https://docs.racket-lang.org/guide/index.html`
Racket Reference: `https://docs.racket-lang.org/reference/index.html`
Racket Documentation: `https://docs.racket-lang.org/continue/index.html`
Scribble tutorial: `"https://docs.racket-lang.org/scribble/getting-started.html"`
Scribble Manual: `https://docs.racket-lang.org/scribble/`

1 License

2 Basics of the Scribble/Racket language

The first line of your document should indicate the language you are using `"#lang scribble/doc"`. There should be nothing else on that line. The next element on your document should be any libraries you will

Remember this?

Non-CS/math coders
CS Freshmen
Middle schoolers [???] Language researchers

Racket for the "General" Programmer

Non-CS/math coders
CS Freshmen
Middle schoolers

General coders

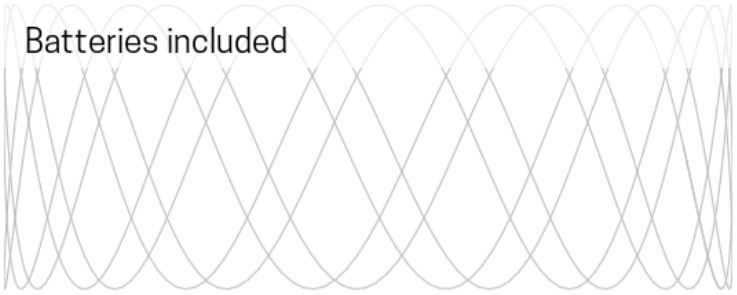
Language researchers

Racket solve problems · make languages

DOCS PACKAGES DOWNLOAD

(eighth RacketCon) is for developers, contributors, programmers, educators, and bystanders. September 29–30 in St. Louis, Missouri. **Join us!**

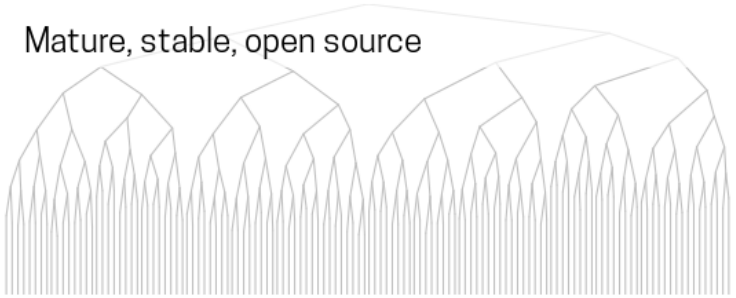
Batteries included



Cross-platform

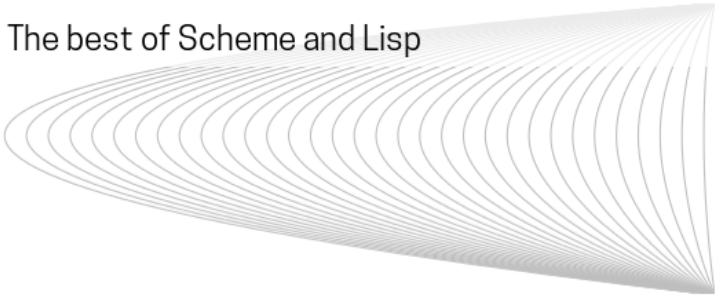
Powerful macros & languages

Mature, stable, open source



DrRacket IDE & tons of documentation

The best of Scheme and Lisp



Racket is a general-purpose programming language as well as the world's first ecosystem for language-oriented programming. Make your dream language, or use one of the dozens already available, including these —

#lang racket

```
(require 2htdp/image) ; draw a picture
(let sierpinski ([n 8])
  (cond
    [(zero? n) (triangle 2 'solid 'red)]
    [else (define t (sierpinski (- n 1)))
```

#lang typed/racket

```
;; Using higher-order occurrence typing
(define-type SrN (U String Number))
(: tog ((Listof SrN) -> String))
(define (tog l)
  (apply string-append (filter string? l)))
```

#lang racket/gui

```
(define f (new frame% [label "Guess"]))
(define n (random 5)) (send f show #t)
(define ((check i) btn evt)
  (message-box "." (if (= i n) "Yes" "No")))
(for ([i (in-range 5)])
```

#lang scribble/base

```
@; Generate a PDF or HTML document
@title{Bottles: @italic{Abridged}}
@(apply
  itemlist
  (for/list ([n (in-range 100 0 -1)])
```

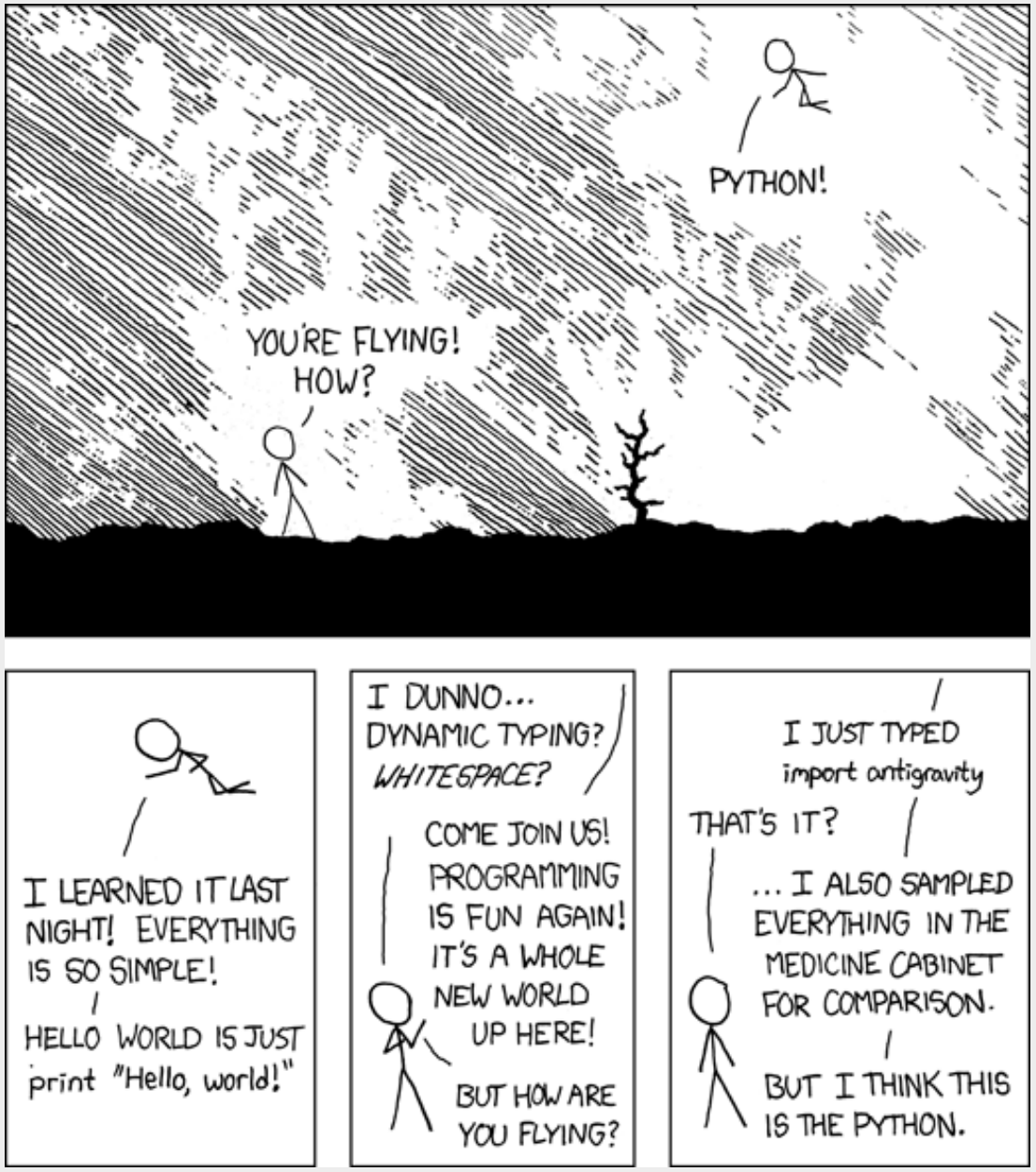
#lang datalog

```
ancestor(A, B) :- parent(A, B).
ancestor(A, B) :-
  parent(A, C), ancestor(C, B).
parent(john, douglas).
parent(bob, john).
```

#lang web-server/insta

```
;; A "hello world" web server
(define (start request)
  (response/xexpr
   '(html
     (head (title "Racket"))
```

This was me for about 10 years...

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SAFE! NO HARMFUL FUMES*
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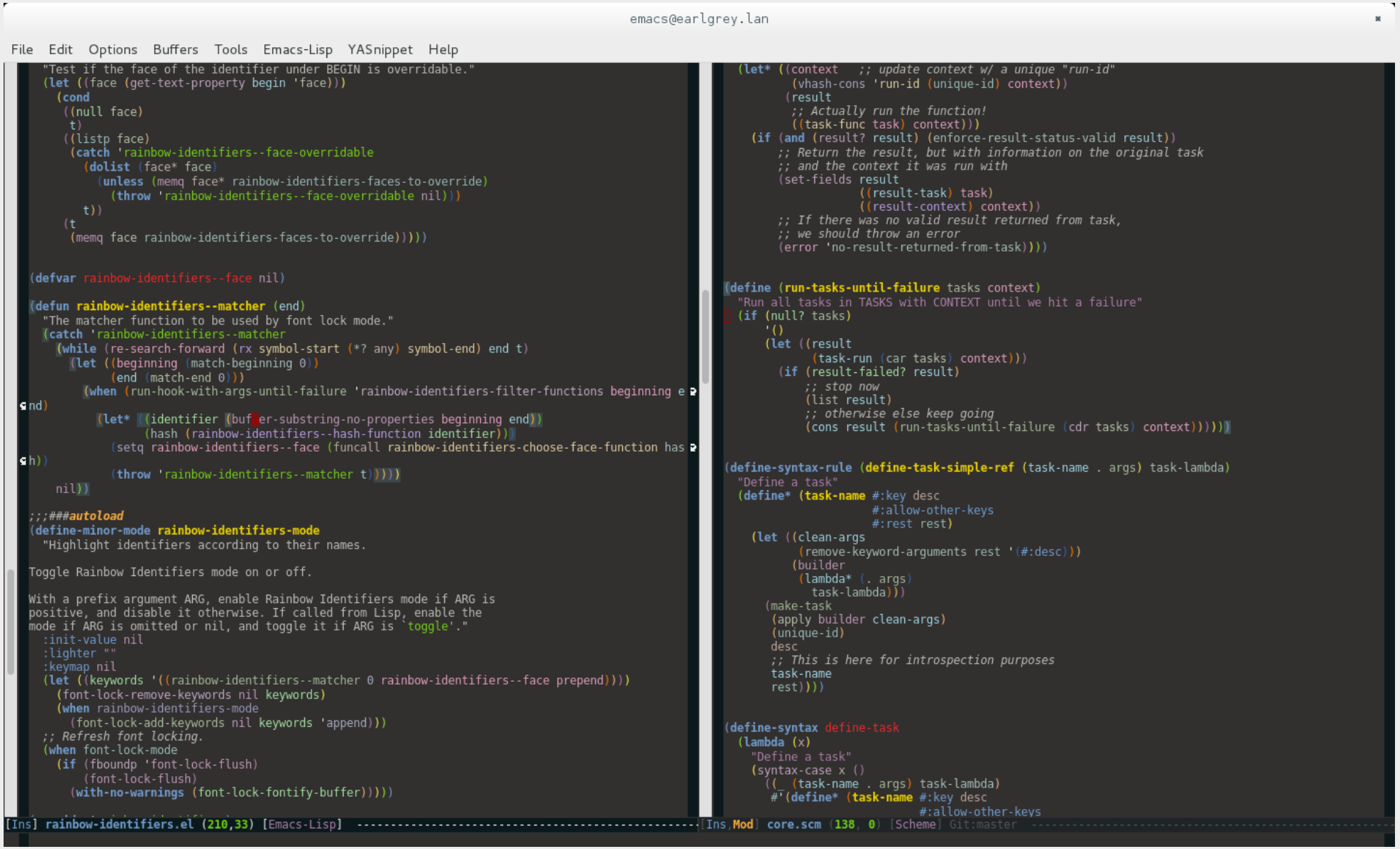
BORDEN®

#langs are great, but libraries are legos

And Racket has so many great legos!

- pict
- web server
- db
- crypto
- game libraries (big-bang, lux, ...)
- ... and so much more!

`(how do i learn ,some-lisp ?)



`(how do i learn ,racket ?)

snowman.rkt - DrRacket*

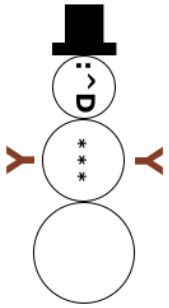
File Edit View Language Racket Insert Tabs Help

snowman.rkt (define ...) Check Syntax Debug Macro Stepper Run Stop

```
#lang racket
(define body
  (hc-append left-arm
             (cc-superimpose (disk 65 #:color "white")
                             (text "* * *" '(bold) 15 (* pi .5)))
             right-arm))

(define butt
  (disk 80 #:color "white"))

(define top-hat
  (vc-append
   (filled-rectangle 30 30 #:color "black")
   (filled-rectangle 50 10 #:color "black")))

(define snowman
  (vc-append top-hat head body butt))
```

Welcome to DrRacket, version 7.0 [3m].
Language: racket, with debugging; memory limit: 128 MB.

```
> snowman
```



```
>
```

Determine language from source 5:2 605.12 MB

Racket is ready for the "general" programmer...

... if we choose it to be!

Image credits

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- Legos photo by Alan Chia (CC BY-SA 2.0)
- Fibonnaci sequence by Dicklyon, in the public domain
- Monty Python image by Monty Python

Thanks! Questions?

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fediverse: https://octodon.social/@cwebber